

IN THE CLAIMS

1. (currently amended) A heater chip for an ink jet print head, the chip comprising:

a substrate having a device side including an active heater array located on the device side having a plurality of active heater resistors that may be placed in electrical communication with a driver circuit for supplying electrical impulses to activate the heater resistors for printing, the active heater array terminating to define an end of the active heater array; and

an inactive heater array located adjacent to and extending away from the end of the active heater array; wherein the inactive heater array provides:

(a) a region adjacent the end of the active heater array that is substantially planar, and

(b) a plurality of current paths for an active heater resistor adjacent the end of the active heater array which reduce energy differences between a heater resistors adjacent the end of the active heater array and other heater resistors in the active heater array.

2. (original) The heater chip of claim 1, wherein the chip is configured for use with a top-shooter type print head.

3. (original) The heater chip of claim 1, further comprising a nozzle plate attached to the chip and having ink ejection nozzles located at positions corresponding to the active heater resistors.

4. (original) The heater chip of claim 1, wherein the inactive heater array comprises one or more inactive heater resistors.

5. (original) The heater chip of claim 1, wherein the inactive heater array comprises passivation, cavitation protection, and resistive layers.

6. (currently amended) A heater chip for an ink jet print head, the chip comprising:

a substrate having a device side including an active heater array located on the device side with a plurality of active heater resistors that may be placed in electrical communication with a driver circuit for supplying electrical impulses to activate the heater resistors for printing, the active heater array terminating to define an end of the active heater array; and

an inactive structure located adjacent to and extending away from the end of the active heater array; wherein the inactive structure provides a region adjacent the end of the active heater array that is substantially planar, and wherein the inactive structure is effective to ~~provide active heater array energy characteristics that improve~~ reduce current path resistance variations between an active heater resistor adjacent the end of the active heater array and other active heater resistors in the active heater array ~~ink-bubble performance~~.

7. (currently amended) The heater chip of claim 6, wherein the inactive structure provides a plurality of current paths for one or more of the active heater resistors adjacent the end of the active heater array which reduces an energy difference between the one or more of the active heater resistors adjacent the end of the active heater array and other heater resistors in the active heater array.

8. (original) The heater chip of claim 6, wherein the inactive structure comprises one or more inactive heater resistors.

9. (original) The heater chip of claim 6, wherein the chip is configured for use with a top-shooter type print head.

10. (original) The heater chip of claim 6, further comprising a nozzle plate attached to the chip and having ink ejection nozzles located at positions corresponding to the active heater resistors.

11. (original) The heater chip of claim 6 wherein the inactive structure comprises passivation, cavitation protection, and resistive layers.

12. (currently amended) An ink jet print head containing a heater chip according to claim ~~4~~6.

13. (currently amended) A method for making a heater chip for an ink jet print head, the method comprising ~~the steps of providing a substrate having a device side, forming an active heater array on the a device side of a substrate, the active heater array having a plurality of active heater resistors that may be placed in electrical communication with a driver circuit for supplying electrical impulses to activate the heater resistors for printing, with the active heater array terminating to define an end of the active heater array; and providing an inactive structure at a location on the device side of the substrate adjacent to and extending away from the end of the active heater array, wherein the inactive structure provides a region adjacent the end of the active heater array that is substantially planar, and wherein the inactive structure is effective to reduce current path resistance variations between an active heater resistor adjacent the end of the active heater array and other active heater resistors in the active heater array. ~~a reduce current path resistance at the end of the active heater array.~~~~

14. (currently amended) The method of claim 13, wherein ~~the step of~~ providing an inactive structure comprises providing one or more inactive heater structures.

15. (currently amended) The method of claim 13, wherein ~~the step of providing the acts of forming~~ an active heater array and ~~the step of providing an~~ inactive structure are performed at substantially the same time.

16. (currently amended) The method of claim 13, wherein the inactive structure ~~includes~~ provides a plurality of current paths for the active heater resistor adjacent the end of the active heater array which reduce energy differences between the heater

resistors adjacent the end of the active heater array and other heater resistors in the active heater array.

17. (currently amended) The method of claim 13, wherein the inactive structure is effective to ~~provide active heater array energy characteristics that~~ improve ink bubble performance.

18. (currently amended) The heater chip of claim 6, wherein the inactive structure is effective to ~~a~~ reduce current path resistance through active heater resistors adjacent to ~~at~~ the end of the active heater array.